

ZPRINT 80

Printer Support Package

for the
Timex/Sinclair
TS2068
and
Sinclair
ZX SPECTRUM

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Zprint80

Printer Support Package

Zprint80 supports your centronics printer in the following ways

- 1 - LPRINT output
- 2 - LLIST output
- 3 - Normal size screen COPY
- 4 - Full page grey scale color screen COPY

LPRINT/LLIST output supports all centronics printers.
Screen COPY routines support the following printers only

Gemini 10X
Gemini SG10
Memotech DMX80
Panasonic 1090/1091
Epson RX/FX
Mannesman Tally Spirit-80
Prowriter 8510

Zprint80 supports the following printer interfaces

Aerco
Tasman-B
Tasman-C
A & J

Zprint80 is compatible with the ZEUS Assembler and ZEUS Disassembler. (see page 4)

USING Zprint80

Before you can use this printer support package in your own programs you will have to custom configure the Zprint80 machine code for your particular printer and printer interface. We have provided you with two versions of the Zprint80 code; a high memory version (base=64000) and a low memory version (base=27000). Both versions are 1300 bytes long. The high memory version is for use with your own programs (see page 5 for instructions on linking the Zprint80 code with your own programs), the low memory version is useful if you want to use Zprint80 with an application program which resides in Zprint80's high memory location (like Zeus assembler or disassembler, see page 4). So to customize the code for your setup, place the Zprint80 Tape into your recorder, rewind and < LOAD "customize" >. This program will walk you through the customization choices and at the end SAVE your custom configured code to Tape for your later use.

You can link this custom code with your own programs (see page 5) or use it in conjunction with existing Application programs like ZEUS assembler/disassembler. (see page 4)

MAKING Zprint80 DO YOUR THING

Below are all the BASIC commands to invoke and control all the functions of Zprint80 ...

(Please note that the (base + offset) notation in the following section is merely a convenience, you will evaluate it to an actual address considering the base address of the Zprint80 version you are working with)

To select centronics printer for LPRINT/LLIST output:

< RANDOMIZE USR (base) >

To select TS2040 printer for LPRINT/LLIST output:

< RANDOMIZE USR (base + 3) >

For normal size screen COPY to centronics printer:

< RANDOMIZE USR (base + 6) >

(Please Note: Centering NOTE on next page)

For full size screen COPY to centronics printer:

< RANDOMIZE USR (base + 9) >

(Please Note: This COPY fills entire page so align to page top)

To change width of LPRINT/LLIST centronics printer output:

< POKE (base + 12),width: RANDOMIZE USR (base) >

(Please Note: Maximum width is 136, DO NOT EXCEED!)

To turn linefeed from software on:

< POKE (base + 647),10 >

To turn linefeed from software off:

< POKE (base + 647),0 >

To send control codes or graphics data to centronics printer:

Before sending control codes or graphics data to your centronics printer via LPRINT you must disable the Zprint80 Data Transforms with < POKE 23728,1 > and afterward you must enable Data Transforms with < POKE 23728,0 >. Below is an example of sending out control codes for emphasized print (Gemini S610).

< POKE 23728,1: LPRINT CHR\$ 27; CHR\$ 69;:POKE 23728,0 >

IMPORTANT NOTES:

- * Embedded print comma's cause a line feed.
- * COPY routines reset all printer modes, power up status.
- * At the end of LPRINT/LLIST output to your centronics printer, the printers buffer may still have the last bit of LPRINT/LLIST data stored but unprinted. Executing < LPRINT > will force the remaining buffer to be printed.
- * If you are outputting to your centronics printer and it goes off line (error, paper-out, power-off) pressing BREAK will not immediately return you to BASIC. This is because the print-out routine, at BREAK time, does special output to clear the printer and if the printer is offline it can't. Servicing the printer and bringing it back online allows BREAK termination.
- * To change normal size COPY centering use the following...

< POKE (base+634),column of left edge of COPY >

USING Zprint80 WITH ZEUS ASSEMBLER OR DISASSEMBLER

Here are the steps

- 1 - Load Zeus assembler/disassembler, but do not enter it.
- 2 - Load customized 'Zprint-1q' code.
- 3 - Execute < CLEAR 26999: POKE 27012,32: RANDOMIZE USR 27000 >
- 4 - You can now enter Zeus. All LPRINT output will go to your centronics printer.

LINKING Zprint80 WITH YOUR OWN PROGRAMS

Here are the steps

- 1 - Customize and SAVE to tape a high memory version of Zprint80
- 2 - Write or LOAD your BASIC program into the computer and make the following additions

```
9900 SAVE "name" LINE #no : REM #no=auto start line
9910 SAVE "zprnt-hi" CODE 64000,1300
9920 STOP
```

Your auto start line should do this (assume auto start at line 10)

```
10 CLEAR 63999 : REM protect code area
20 LOAD "zprnt-hi" CODE
30 POKE 64012,width : RANDOMIZE USR 64000
40 REM above line selects big printer and sets width
50 REM rest of your program follows
```

- 3 - With this BASIC program still in memory, LOAD the custom "Zprnt-hi" you SAVED earlier using the following direct command ... < CLEAR 63999: LOAD "Zprnt-hi" CODE 64000 >
- 4 - Execute < GOTO 9900 > so as to SAVE your program linked with Zprint80 code.
- 5 - Now when you LOAD this program it will auto start and the first thing it will do is LOAD the Zprint80 code and initialize before proceeding to the rest of your program.

LOAD "ZPRNT
"PRNT-HI" CODE 64000

1000 1000 1000 1000

1000 1000

1000

1000 1000

1000 1000

1000 1000